STAFF REPORT

WORKSHOP
ON
ADMINISTRATIVE DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM GENERAL PERMIT AND WASTE DISCHARGE REQUIREMENTS GENERAL ORDER FOR MILK COW DAIRIES

BACKGROUND

Recent changes to federal and state laws or regulations are changing the way that dairies must be regulated in the Central Valley Region (Region). Most dairies in the Region historically operated under a waiver of waste discharge requirements (Board Resolution 82-036). This waiver expired on 1 January 2003 (California Water Code (CWC) Section 13269). In February 2003, the United States Environmental Protection Agency (USEPA) adopted final regulations for Concentrated Animal Feeding Operations (CAFOs), which now require all large dairies to apply for a National Pollutant Discharge Elimination System (NPDES) permit.

In January 2003, staff released an initial administrative draft NPDES General Permit for all CAFOs in the Region to implement the new federal regulations. Staff received extensive comments on the initial draft and reported these to the Board. The current proposed draft General Order that is the subject of this workshop is narrowed to only include dairies and is based on comments received on the initial draft permit, the new federal regulations and the State laws and regulations relevant to confined animal facilities.

The administrative draft General Order that is the subject of this workshop is an NPDES General Permit applicable to all existing milk cow dairies that have 700 or more mature milk cows and which are defined under the federal regulations as a Large CAFO. For the purposes of the draft General Order, existing dairies are ones that are in operation as of the date of noticing of the tentative permit on ____2004. The draft General Order does not apply to dairies that began construction after 14 April 2003 or to dairies that expand after the date of noticing of the tentative permit.

DAIRIES IN THE CENTRAL VALLEY REGION

There are approximately 1,650 dairy operations within the Region. Of these, approximately 1,000 are of sufficient size to meet the federal definition of a Large CAFO. The federal regulations require these large dairy facilities to seek coverage under an NPDES Permit. The proposed draft General Order requires any existing dairy defined as a Large CAFO to apply for coverage under the General Order by submitting a Notice of Intent (NOI), or to apply for an individual NPDES permit by submitting a Report of Waste Discharge, within 45 days of the effective date of the Order.

Fifty-two (52) dairies in the Region are currently regulated under General WDRs for Milk Cow Dairies, Order No. 96-270. Sixty-seven (67) additional dairies in the Region

are currently regulated under individual WDRs. Forty-one (41) of these 119 facilities are of sufficient size to be defined as a CAFO and have a responsibility to apply for an NPDES permit.

On 17 April 1997, the State Board adopted a General Industrial Storm Water Permit (Order No. 97-03-DWQ, NPDES No. CAS000001). Order No. 97-03-DWQ implements the final federal regulations (Title 40 CFR Parts 122, 123, and 124) for storm water runoff published on 16 November 1990, by USEPA in compliance with Section 402(p) of the Clean Water Act. Approximately 250 dairy facilities in the Region are currently subject to Order No. 97-03-DWQ. Provisions of Order No. 97-03-DWQ that pertain to dairies are included in the draft Order so Dischargers need only refer to a single document. Coverage under Order No. 97-03-DWQ will not be necessary once a dairy is authorized to discharge under an adopted General Order.

APPLICABLE FEDERAL AND STATE REGULATIONS

Federal Regulations

USEPA regulations affecting CAFOs are set forth in Title 40 of the Code of Federal Regulations (CFR) Parts 122 and 123 and in "*Effluent Limitation Guidelines and Standards for CAFOs*" in Title 40 CFR Part 412. The most recent revisions to Title 40 CFR Parts 122, 123, and 412 took effect on 14 April 2003 and are included in the draft General Order.

The revised federal CAFO regulations require all CAFOs to apply for an NPDES permit (40 CFR Section 122.23(d)(1)), submit annual reports (40 CFR Section 122.42(e)(4)), maintain operational records (40 CFR Section 122.42(e)(2)), and develop and implement a nutrient management plan (40 CFR Section 122.42(e)(1)). The CAFO regulations provide regulation of discharges of animal waste to surface waters.

State Regulations

Title 27, California Code of Regulations

Division 2, Subdivision 1, Chapter 7, Subchapter 2, Article 1 of Title 27 of the California Code of Regulations (Title 27) prescribes minimum standards for discharges of animal waste at confined animal facilities to protect both surface water and groundwater. For surface water protection, Title 27 includes requirements for adequate design of containment facilities for both storm water and process wastewater and adequate flood protection.

For groundwater protection, Title 27 requires Dischargers to: minimize percolation of wastewater to groundwater in disposal fields; apply manure and wastewater to disposal fields at reasonable agronomic rates; minimize infiltration of water into underlying soils in manured areas; and locate retention ponds in, or line retention ponds with, soils of at least 10% clay and no more than 10% gravel.

Water Quality Control Plans

The Regional Board has adopted Water Quality Control Plans (Basin Plans) for the Sacramento River and San Joaquin River Basins (4th ed.) and for the Tulare Lake Basin (2nd ed.). These two Basin Plans designate the beneficial uses of groundwater and surface waters of the Region, specify water quality objectives to protect those uses, and include implementation programs for achieving water quality objectives. The applicable beneficial uses and water quality objectives are described on pages 7 and 8 of the Fact Sheet, which is part of the draft General Order.

The Basin Plans also include plans and policies of the State Board incorporated by reference, including State Board Resolution No. 68-16 (*Statement of Policy with Respect to Maintaining High Quality Waters in California*), State Board Resolution 88-63 (*Sources of Drinking Water Policy*), and State Board Resolution No. 92-49 (*Policies and Procedures for Investigation and Cleanup or Abatement of Discharges Under Water Code Section 13304*). The draft General Order specifies requirements necessary to comply with the Basin Plans, including requirements to meet the water quality objectives and protect beneficial uses specified in the Basin Plans, and other applicable plans and policies.

California Environmental Quality Act (CEQA)

Title 14 of the California Code of Regulations

Chapter 3 of Title 14 of the California Code of Regulations (Title 14) includes *Guidelines for the Implementation of the California Environmental Quality Act*. Section 15301 of Title 14 includes a categorical exemption from CEQA for "existing facilities" that applies to "*…the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination…*"

California Water Code Section 13389

California Water Code Section 13389 states "*Neither the state board nor the regional boards shall be required to comply with the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code prior to the adoption of any waste discharge requirement, except requirements for new sources as defined in the Federal Water Pollution Control Act or acts amendatory thereof or supplementary thereto*."

The draft General Order limits coverage to dairy facilities that are not "new sources" as defined in Title 40 CFR Section 122.2 and 122.29(b) consistent with California Water Code Section 13389 and are "existing facilities" as of ____ 2005 [the date of noticing the tentative permit] consistent with the "existing facility" exemption in Title 14 Section 15301. Therefore, the adoption of this Order is statutorily exempt from CEQA based on California Water Code Section 13389 because it does not apply to "new sources" as defined in Clean Water Act Section 306 or in Title 40 CFR Part 122. The adoption of

this General Order is also categorically exempt from CEQA because eligibility is limited to "existing facilities."

DAIRY WASTES

For the purposes of the draft General Order, dairy waste includes, but is not limited to, dry manure, and process wastewater resulting from water directly or indirectly used in the management of a dairy or resulting from any of the following: spillage or overflow from animal watering systems; washing, cleaning, or flushing pens, barns, manure pits, or other animal feeding operation facilities; direct contact swimming, washing, or spray cooling of animals; or dust control. Waste also includes any water or precipitation that came into contact with raw materials, products, or byproducts such as manure, compost piles, feed, silage, milk, or bedding.

Waste generated at dairies is stored dry in piles or in liquid form in waste retention ponds. The wastes are then applied to land or transported off-site for utilization as a nutrient source for crop production. Nutrient applications are made to soils of varying character and drainage characteristics, varying proximity to surface drainages and waterways, different character of geology and depth to groundwater. The waste material can be a nutrient source to crops, but can create nuisance conditions if improperly managed or cause pollution of surface water and/or groundwater if site conditions are not taken into account in preparing the nutrient utilization strategy. The draft General Order regulates the management of dairy wastes onsite and requires monitoring and continuous tracking of wastes being taken off-site for utilization.

Manure and other waste material from dairies contain high concentrations of salts (total dissolved solids, including constituents such as sodium and chloride) derived primarily from the feed and water sources used in the dairy production activities. Some dairies also use water softening devices for milk barn cleaning and other activities and the concentrated brines or reject water is usually sent to the retention pond, thus increasing the salt concentrations further. Manure from dairies also contains elevated levels of nutrients (including nitrogen, ammonia, phosphorus and potassium compounds) that can be used in crop production. A recent review of dairy manure by a University of California Committee of Consultants (UCCC) indicates that dairy cows in the Central Valley excrete approximately one (1) pound (lb) of nitrogen per head per day and approximately 2.1 lbs of inorganic salts (excluding nitrogen) per head per day. Thus, a 1,000-cow dairy generates approximately 365,000 lbs of nitrogen and 767,000 lbs of salts per year that must be managed to prevent impacts to water quality

WATER QUALITY IMPACTS DUE TO DISCHARGES FROM DAIRIES

The application of manure or the discharge of process wastewater to a land application area results in the discharge of salts and nitrogen compounds. Oxidation of nitrogen compounds (i.e., ammonia and organic nitrogen compounds) to nitrites and nitrates has the potential to degrade the quality of surface water and groundwater in the Region, if not properly managed. This is particularly so for groundwater if the materials are applied to

the land application area at rates that exceed crop needs. The recent UCCC review of dairy waste recommends that in cropland application of dairy manure, the total nitrogen load of the field should not exceed 1.2 to 1.4 times the potential maximum nitrogen uptake by plants, suggesting that successful cropping and minimal nitrate leaching is realistic to achieve at these application rates.

Surface water can also be degraded by both the presence of pollutants in the waste stream and by the very concentrated nature of cow manure and manure wastewater. Surface water can be degraded by the presence of ammonia in the waste, which can cause ammonia toxicity to aquatic life or suppress dissolved oxygen concentrations. In addition, nitrogen and phosphorus compounds in the waste can cause excessive algal growth in surface waters, resulting in lower oxygen levels and which in turn can cause fish and other organisms to die.

The waste stream consists primarily of manure and manure wastewater both of which contain pathogens and can create a public health threat through contact with affected surface waters. The draft General Order includes effluent limitations for the production area and the land application areas that are consistent with the federal regulations. The draft General Order also includes both surface water and groundwater limitations. Surface water limitations specify, "Any discharge of waste at CAFOs shall not cause violations of water quality objectives in the Basin Plans." Groundwater limitations specify, "Discharge of waste at the CAFO shall not, in combination with other sources, cause the underlying groundwater to be degraded, to exceed water quality objectives, unreasonably affect beneficial uses, or cause a condition of pollution or nuisance,"

Storm water may contain pollutants from dairy wastes if the storm water is allowed to contact manured areas or commingle with wastewater from the dairy. Provisions in the draft General Order require dairies to contain all storm water from the production area that has contacted manured areas or commingled with dairy wastewater. If storm water from the production area is discharged to surface water or surface water drainage courses in accordance with the draft General Order, provisions in the Order require the dairy to monitor the storm water discharges.

EFFLUENT LIMITATIONS

Federal regulations require Large CAFOs (i.e., dairies with 700 or more mature dairy cows) to comply with technology-based effluent limitations for the production and land application areas. Effluent limitations for the production area prohibit the discharge of manure, litter, or process wastewater pollutants into waters of the United States from the production area except when "…precipitation causes an overflow of manure, litter, or process wastewater pollutants into waters of the U.S. provided:

(i) The production area is designed, constructed, operated, and maintained to contain all manure, litter, and process wastewater including the runoff and the direct precipitation from a 25-year, 24-hour rainfall event;

(ii) The production area is operated in accordance with the additional measures and records required by Section 412.37(a) and (b)."

The draft General Order includes the above effluent limitations for the production area and also prohibits any allowed discharge from causing the receiving water to exceed water quality objectives as specified in the Basin Plan(s). The draft General Order also includes additional design standards, management practices, provisions, and monitoring requirements for the production area to ensure that water quality standards will be attained in the receiving water. Groundwater monitoring will be used to demonstrate the production area design and operation is protecting groundwater quality.

Effluent limitations for the land application area focus on dairies developing and implementing best management practices (BMPs) as specified in Section 412.4 of the CFR. This includes preparing a Nutrient Management Plan (NMP) that includes determination of application rates, manure and soil testing, inspection of land application equipment for leaks, and setback requirements and maintaining the records specified in Section 412.37(c) of the CFR (i.e., expected crop yields; dates of waste applications; weather conditions 24 hours before and during application; test methods and results for manure, soil, process wastewater samples; amount of nutrients applied, etc).

The draft General Order requires each large dairy (CAFO) to develop and implement a NMP and also includes additional requirements for the land application area such as incorporation of applied manure into soil within 48 hours of application, infiltration of applied wastewater within 24 hours after application, no application of wastewater to a land application area during a storm event and for 24 hours after a storm event, etc. Groundwater monitoring is also used to ensure that the NMP and BMPs are protecting groundwater quality.

TECHNICAL STANDARDS FOR NUTRIENT MANAGEMENT

Title 40 CFR Section 123.36 requires states to establish technical standards for nutrient management that are consistent with Title 40 CFR Section 412.4(c)(2). Title 40 CFR Section 412.4(c)(2) requires that a NMP include a determination of application rates of manure and wastewater to minimize the transport of nitrogen and phosphorus from the land application area to surface water in accordance with technical standards. The technical standards are to "…(i) include a field specific assessment of the potential for nitrogen and phosphorus to transport from the field to surface waters, and address the form, source, amount, timing, and method of applications of nutrients in each field to achieve realistic production goals, while minimizing nitrogen and phosphorus movement to surface waters, and (ii) include appropriate flexibilities for any CAFO to implement nutrient management practices to comply with the technical standards." The Fact Sheet lists the technical standards for nutrient management as contained in the draft General Order.

SUMMARY OF PERMIT REQUIREMENTS

All dairies covered under the draft General Order would be required to:

1. Submit a timely application for coverage under the General Order or under an individual NPDES Permit (federal regulations).
2. Submit a Waste Management Plan for the production area that demonstrates that the facility is capable of compliance with the federal regulations for surface water protection.
3. Develop and implement a Nutrient Management Plan for the land application area that protects surface water (federal regulations) and groundwater (state regulations).
4. Conduct periodic inspections of the production area to ensure that waste handling and storage facilities are properly operating and maintained (federal regulations).
5. Monitor wastewater, soil and manure to ensure application at proper rates (federal regulations)
6. Monitor wastewater and storm water discharges to surface water to ensure that water quality objectives are not violated.
7. Report noncompliance events and steps taken to prevent future events (federal regulations).
8. Conduct a short-term Storm Water Monitoring Assessment to ensure clean storm water diverted from the facility does not contain pollutants.
9. Keep operational records for the production and land application areas (federal regulations).
10. Submit annual monitoring reports to demonstrate compliance.

Items 1, 3 through 5, 7, 9 and 10 above are required under the federal regulations. The federal regulations require that facilities attain the effluent limitations for the production area upon coverage under an NPDES permit. The Waste Management Plan is required for dairies to demonstrate that they are in compliance with the effluent limitations for the production area required under the federal regulations and with the minimum standards under the state regulations.

Groundwater Monitoring

The draft General Order allows on-site storage and land application of large volumes of waste over aquifers that serve multiple beneficial uses. It requires groundwater monitoring at the larger dairies for three reasons: 1) the volume and character of waste generated, 2) the findings of existing monitoring, and 3) review of the statewide minimum regulations for confined animal facilities. Each of these will be discussed in more detail.

Volume and Character of the Waste

Each dairy site represents a significant waste load and, thus, a potential threat to groundwater quality. A 1,300-cow dairy generates approximately 27,000 tons of manure, 475,000 lbs of nitrogen, and almost one (1) million lbs of inorganic salts each year. The concentration of salts and other constituents in the wastewater is several times higher

than levels protective of drinking water and other uses of the groundwater. If these constituents are not properly managed, the threat to groundwater from this waste load is very high.

The Findings of Existing Monitoring

The need to monitor groundwater is based on not only this potential threat, but also the fact that monitoring over the last decade has shown extensive degradation or pollution at a number of dairy sites throughout the Region and in other areas of the state.

Studies in the late 1960s through the mid 1970s in the Chino Basin of Southern California showed that dairies were contributing to the degradation of the groundwater in the basin. Recent results show this is continuing and the Santa Ana Regional Board has been limiting land application of waste in the basin for almost a decade now.

In 1993, the Board staff along with the dairy industry conducted groundwater monitoring at five dairies that were known to have good waste management and land application practices. These dairies were located in a high-risk groundwater area (shallow water table and porous soils). Elevated levels of salts and nitrates were found under all five sites even though the storage, handling and land application of solid and liquid waste materials was being done in accordance with the minimum standards set forth in Title 27 of the California Code of Regulations.

More recent monitoring at approximately 80 dairy sites in the Tulare Lake Basin has shown groundwater pollution under many of the monitored sites. These sites included areas where groundwater is as deep as 150 feet below the ground surface and in areas underlain by fine-grained sediments. The source of the pollution, whether it is coming from the retention ponds, corrals or the land application areas or a combination of all three, is unclear.

Review of the Statewide Minimum Regulations

Dischargers of waste in California are required by state policy (State Water Resources Control Board Resolution 68-16) to either prevent waters of the state from being degraded; or show that they have implemented "Best Practicable Treatment or Control" (BPTC), that any degradation that occurs is in the best interest of the people of the state, and that no pollution will occur. The current statewide minimum regulations for groundwater protection were codified in 1984 as part of Title 27 of the California Code of Regulations. Title 27 regulations were tailored after the "*Minimum Guidelines for Protection of Water Quality from Animal Wastes*" developed in 1973 by the State Water Resources Control Board and the University of California. These guidelines were referenced in the Basin Plans as far back as 1975. Prior to expiration of the waiver in 2003, discharges from dairies in compliance with the minimum regulations (or guidelines prior to the codification) were waived of the need for Waste Discharge Requirements. In essence, it was accepted that a dairyman who complied with the minimum regulations would not degrade waters of the state, or had implemented BPTC and would not cause a

condition of pollution. However, as mentioned above, groundwater monitoring has found pollution.

Staff has been concerned about the sufficiency of the statewide minimum regulations for some time. For this reason, a contractor was hired to review the Title 27 regulations for groundwater protection from waste handling and storage in a typical dairy production area (retention ponds and corrals). The report findings show that, depending on local site conditions, the retention ponds and corrals could act as a significant source of groundwater pollution if they are only meeting minimum construction criteria defined in Title 27.

The University of California Cooperative Extension has also undertaken further studies at the original five sites monitored by the Regional Board to see if the source of the pollution can be isolated. Their studies show that all sources (corrals, storage lagoons and land application areas) are a potential source but the greatest threat comes from the land application areas and the practices used there.

The Title 27 regulations state that *"Application of manure and wastewater to disposal fields or crop lands shall be at rates which are reasonable for the crop, soil, climate, special local situations, management system, and type of manure."* To assure protection of groundwater, the draft General Order requires the discharger to review waste application methods through the development of a Nutrient Management Plan (NMP) for the land application areas. The requirement for a NMP is consistent with the new federal regulations. Because of the findings of the Regional Board's previous study, the most recent finding of the University of California studies, the results from the Santa Ana Region, and the most recent data indicating continuing groundwater pollution, it is appropriate to determine if groundwater is being degraded at individual facilities. The only way to do this is through groundwater monitoring. Therefore, the draft General Order uses groundwater monitoring to determine if the land application procedures or changes implemented as a result of the NMP are protecting groundwater.

The draft General Order would require Dischargers to demonstrate through groundwater monitoring if the design, construction, operation, and maintenance of existing dairies has protected groundwater quality. The draft General Order includes a time schedule that phases in the submittal of groundwater monitoring reports. This phased time schedule is appropriate due to the large number of existing dairies in the Region, the limited number of private professionals to design and construct monitoring wells, and the Regional Board's limited resources. Those facilities that pose the highest risk to groundwater quality would be asked to implement monitoring first.

Considering dairy size only, the largest dairies would pose the highest risk to groundwater quality. Therefore, the draft General Order requires dairies with 1,300 or more mature dairy cows to initiate groundwater monitoring during the five-year term of this Order. This would be approximately one half of the existing dairies covered under

this Order. The remaining approximately 500 dairies ranging in size from 700 to 1,299 mature dairy cows may be required to initiate groundwater monitoring over the five-year term of the next update of this permit. The draft General Order phases in groundwater monitoring requirements over the five-year term of the permit, by creating four size-groups with the largest group initiating groundwater monitoring first.

Under the draft General Order, the Executive Officer may require any dairy covered by the Order, regardless of size, to monitor groundwater at any time, including if violations of the Order are documented and/or if the facility is located in a high-risk area, e.g., where a sole-source aquifer is, or may be, impacted.

Professional Certifications
General Reporting Requirement C.8 of the Standard Provisions and Reporting Requirements, which is part of the draft General Order, requires "All technical reports required in the Order that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by, or under the direction of, and signed by persons registered to practice in California pursuant to California Business and Professions Code, Sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16 CCR, Sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work."

Specifically, the draft Order requires the following professional certifications:

> "The portions of the WMP that are related to facility and design specifications and operation and maintenance … must be prepared and certified by a civil engineer who is registered pursuant to California law or other person as may be permitted under the provisions of the California Business and Professions Code to assume responsibility of such work."
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> "The groundwater monitoring reports shall be certified by a California registered professional as specified in General Reporting Requirements C.8 [see above] of the Standard Provisions and Reporting Requirements of Order No. ___."

These professional certifications are necessary to meet the requirements of the California Business and Professions Code. Professional certifications will also relieve staff's burden to approve the several reports that each Discharger will be required to submit.

The draft Order also requires that the initial NMP related to the application of wastes at agronomic rates be developed and certified by a Professional Soil Scientist, Professional Agronomist, Professional Crop Scientist, or Crop Advisor certified by the American

Society of Agronomy or by a Technical Service Provider certified in Nutrient Management California by the Natural Resource Conservation Service (NRCS). The use of professionally certified individuals to prepare the NMPs ensures that persons trained in the proper application of nutrients and the use of sound agronomic practices were used to plan waste applications. The professional certifications would relieve staff of the burden of being involved in the farming practices of the discharger. As well it would relieve staff of the burden of approving such reports yet provide the public with the assurance that proper agronomic practices are being followed.

COSTS TO IMPLEMENT PERMIT REQUIREMENTS

The Regional Board is not allowed to consider costs to the Discharger in the adoption of an NPDES permit when implementing existing water quality standards. However, Regional Board staff has received comments on costs and costs are of concern to Dischargers, therefore, the staff is providing this information. The costs to implement the requirements of the draft General Order include: the filing and annual fees; costs for monitoring, preparing the Nutrient Management Plan, Waste Management Plan, and for those dairies with at least 1,300 mature head, costs for preparing the Monitoring Well Installation Plan, monitoring well installation, and the Monitoring Well Installation Completion Report; costs for reporting; costs for record-keeping; and costs to comply with the operational requirements of the draft General Order. The only costs that are entirely known are the filing and annual fees, since they are already established. These fees are based on facility size, with the fee ranging from $1,200 for dairies with 700 to 1,499 mature dairy cows to $4,000 for dairies with 3,000 or more mature dairy cows. Dairies that are certified under a quality assurance program approved by the State Board or under a County regulatory program approved by the appropriate Regional Board are eligible to receive a 50 percent fee reduction.

Costs for monitoring, preparing the various plans, and reporting could vary significantly depending upon facility characteristics (facility size, land application acreage, geographic location, etc.), consultants conducting the work, and whether information required by the permit was previously gathered. Costs for record-keeping and operation and maintenance activities are site-specific.

Staff received comments regarding the costs to implement the requirements of the draft Order. Western United Dairymen, California Dairy Campaign, and Valley Management Systems provided costs estimates for various elements of the permit.

Western United Dairymen (WUD) provided the most comprehensive cost analysis. An engineering firm based in Turlock prepared the cost analysis at the request of WUD. Detailed documentation was provided to support the estimates for each task required by the draft Order. While Board staff disagrees with some of the task-specific estimates, particularly the well installation estimate, the overall estimate of $39,400 to complete the schedule of tasks appears reasonable.

Based on the staff's analysis and the estimates received during the comment period, a reasonable cost estimate to complete the schedule of tasks is $30,000-$60,000. These costs would be phased in over 2 to 4 years depending on the herd size. Roughly half of the costs are associated with the installation of groundwater monitoring wells. The smallest dairies subject to the draft Order (700-1,299 mature head) are not required to install monitoring wells until later and would, therefore, incur costs of approximately $15,000-$30,000 to complete the schedule of tasks over a 3 to 4 year period.

Regarding the costs to comply with the Monitoring and Reporting Program, Western United Dairymen provided an annual estimate of $28,870. This figure assumes that the monitoring is performed by engineers and engineering technicians. The draft Order does not require professionals to conduct all the monitoring. Board staff believes that dairy personnel can complete most, if not all, of the operation and maintenance documentation and the visual inspections required by the permit. Under this assumption, staff estimates the annual costs to implement the monitoring and reporting program to be approximately $20,000-$25,000. For those facilities not required to conduct groundwater monitoring, the cost savings would be roughly 50%. There are potential options to reduce compliance costs. For example, dairies may be able to contract with companies specializing in sample collection. These companies are often cheaper than hiring professional engineering firms to collect samples. Another example is training dairy personnel, perhaps by the California Dairy Quality Assurance Program, to properly collect samples.

The costs presented in this section are intended to provide a ballpark estimate. Given the number and variability of the facilities subject to this draft Order, it is difficult to provide a precise estimate. It is Board staff's position that the costs to implement the draft Order are commensurate with the threat to water quality posed by CAFOs in the Central Valley and are reasonable given the costs of remediation in the event of failure.

FUNDING SOURCES

There are several federal, state, and local programs that can provide financial assistance to dairymen conducting projects that address environmental concerns. These include the Environmental Quality Incentives Program (EQIP), California County EQIP, Clean Water Act State Revolving Fund, and the Dairy Quality Improvement Grant Program. Each of these is discussed below.

Environmental Quality Incentives Program

The Environmental Quality Incentives Program (EQIP) is a voluntary conservation program that promotes agricultural production and environmental quality. Through EQIP, farmers and ranchers may receive financial and technical assistance to install structural conservation measures and implement conservation practices. EQIP is administered by the Natural Resource Conservation Service (NRCS), which is funded by the federal Farm Bill of 2002. Financial and technical assistance is available to help install or implement structural and management practices on eligible agricultural land. The program and

distribution of funds is done at the state level. Producers engaged in livestock or crop production on eligible land may apply for the program. Eligible land includes cropland, rangeland, pasture, private non-industrial forestland, and other farm or ranch lands. Rankings for allocating money to applicants are based on environmental scores obtained by evaluating the project in the context of local, state, and federal priorities.

California County EQIP Program
The California County EQIP provides funds to counties allowing local concerns to be addressed. Counties are able to establish their own priorities and ranking criteria, select practices for cost sharing, and focus on improving target elements in their community. Fresno, Madera, Kings, Kern, Tulare, Glenn, Merced, Sacramento, San Joaquin, and Stanislaus Counties have identified confined animal facilities as a concern in their EQIP program description. For the most part, ground and surface water are concerns that will be ranked to allocate money. Some of these counties are allocating a percentage of EQIP funds to specifically address water quality protection at confined animal facilities.

Clean Water Act State Revolving Fund
This is a low-interest program funded by federal grants and State bond funds, which provides loans for projects that address point and non-point sources of water pollution. The funds can be used for the construction of facilities or implementation of measures necessary to address water quality problems and to prevent pollution of the waters of the State. Public and private entities are eligible for implementation of source control programs.

Dairy Water Quality Improvement Grant Program
The Dairy Water Quality Improvement Grant Program will provide $5 million from Proposition 50 to fund regional and on-farm dairy projects to address water quality impacts from dairies. Guidelines for the Program will be completed by June 2005 after consultation with all affected parties and the public. Applications for grant funds will then be requested and spending may begin by early 2006. Eligible project types include water quality planning and implementation projects.

RESOURCES FOR COMPLIANCE ASSISTANCE

University Of California Cooperative Extension
The University of California Cooperative Extension has statewide specialists in animal waste management, nutrient management and dairy science. These specialists are located at the Davis campus of the University and throughout the counties in the Central Valley. Like all agencies, Cooperative Extension has been hit very hard with the recent budget cuts but they continue to provide an effective education, outreach and field research program. The university and county specialists are well trained, well respected by the dairy industry and provide a valuable link between research and field application.

In addition, the University of California Committee of Consultants (UC Committee) has been reestablished to evaluate if the current guidance in Title 27 to determine if it is still

adequate to protect water quality. The Committee is focused on evaluating the amount of nitrogen and salt generated by dairy cows, the distribution of waste in different types of dairy facilities, how much nitrogen is lost during storage and transport at a dairy facility, the crop utilization of nitrogen from dairy animal waste, and the need to limit the application of phosphorous or potassium to crops. The UC Committee has submitted a draft final report on its findings.

Natural Resource Conservation Service (NRCS)
The Natural Resource Conservation Service (NRCS) is a federal agency providing technical assistance to farmers and dairy operators on improved management practices. The NRCS also administers the Environmental Quality Incentives Program (EQIP), which is a voluntary conservation program that promotes agricultural production and environmental quality. Through EQIP, dairy farmers may receive financial and technical assistance to install structural conservation measures and implement conservation practices (see the discussion above on EQIP Funding). The NRCS offices are located throughout the Central Valley.

In addition, the NRCS is developing a Comprehensive Nutrient Management Plan (CNMP) for animal feeding operations in California in cooperation with University and other state and federal agency participation. The CNMP will, among other things, provide guidance on how to combine management activities and conservation practices into a system that, when implemented, could minimize the adverse impacts of animal feeding operations on water quality. The CNMP is expected to be finalized in 2005. It will require additional time to interpret and determine how to implement the CNMP.

Environmental Stewardship Programs or Local Ordinances
The California Dairy Quality Assurance Program (CDQAP) is a partnership among federal and state agencies, academia, and the dairy industry and is a voluntary cooperative government and industry education and facility evaluation program. The objective of the CDQAP is to assist California dairy producers in meeting all federal, state, local, and regional regulations relating to manure and nutrient management. The program core components include continuing education workshops for producers, creation of Environmental Stewardship Farm Management Plans, and third party on-site evaluations. As of June 2004, 169 dairies of the approximately 1,650 dairies in the Region have completed on-site certification through the CDQAP. Numerous others have completed the educational component of the program and are in the process of working toward certification.

Some local agencies have ordinances that require confined animal facilities to comply with all applicable local, state, regional, and federal regulations. This can be a benefit to the Regional Board's efforts to obtain compliance when an agency's ordinance contains requirements that are at least as stringent as the Regional Board's requirements and include an inspection and enforcement program.

The CDQAP and local ordinances can greatly assist the Regional Board in their compliance efforts. In the original CDQAP Partnership Agreement, certification was recognized as "carry no regulatory significance," other than to inform agencies of the producer's efforts toward compliance. CDQAP certification also was "not a determination that a facility is in compliance with environmental laws and regulations," but has weighed heavily in our considerations "when scheduling routine inspection."

Since its inception in 1996, the CDQAP has been an effective tool in our compliance efforts. The dairy producers today have a far greater understanding of the needs for environmental compliance. The State Water Resources Control Board has also recognized participation in a quality assurance program or the efforts of a local ordinance when establishing annual fees for confined animal facilities. Facilities under one of these recognized programs receive a 50 percent fee reduction. In addition, the Regional Board also considers certification under the program when prioritizing inspections.

The recent changes to the Clean Water Act however have raised the question of whether an environmental stewardship or local ordinance program can be a substitute for regulation and permit requirements. These programs do offer the producers an opportunity to demonstrate that they have the capability to be in compliance but they cannot act as a substitute for regulation. The CAFO regulations require all covered facilities to apply for coverage under an NPDES Permit. These programs can assist dairy operators in meeting permitting requirements. As an example, the draft General Order asks that each dairy provide documentation by a qualified person approved by a County Health or Environmental Department that no cross connections exist between the waste management system and the water supply or irrigation supply wells and that appropriate backflow prevention devices are in place. This has been one of the strengths of the CDQAP. The CDQAP would need to be approved by the County that they are qualified to make this determination. Such a determination would allow the CDQAP to assist the regulated facility in certifying to the Board. A similar approach could be used for the certification needs for the NMP. If the CDQAP or local ordinance program provided Professional Soil Scientists, Crop Advisors, Agronomists, or Crop Scientists certified by the American Society of Agronomy or NRCS trained staff to certify NMPs, then CDQAP or a local ordinance program certification could be used to meet the requirements of the NMP.

Certification under CDQAP or a local ordinance program cannot be a substitute for the California Business and Professions Code requirement for certification by appropriately licensed professionals. When certifying the design and construction of a facility, the licensed professional assumes the responsibility for that design and construction. At the present time, the CDQAP does not assume such responsibility for dairies, nor did any of the signatories to the agreement consider this as part of their commitment to the program. In addition, none of the local ordinance programs considers this requirement. If the CDQAP or a local ordinance program provided professionals licensed for reviewing that individual dairy facilities were designed, constructed, operated, and maintained to

provide adequate waste containment and flood protection as specified in the draft General Order, then CDQAP or local ordinance certification could be used to meet the requirements for a WMP.

WHAT OTHER REGIONS ARE DOING

Approximately 98 % of the dairy facilities impacted by the new federal CAFO regulations are located in the Central Valley and Santa Ana Regions. The Santa Ana Region has had all dairies within the Region under an NPDES Permit since 1999. This permit is consistent with the new federal CAFO regulations. Under the current NPDES Permit, the Santa Ana Region restricts land application of solid manure in the Chino Basin. As a result some of the solid manure is being shipped into other basins within the Region and also some is shipped into the Central Valley. The Santa Ana Board released an updated draft NPDES permit for Dairies on October 13th and conducted a workshop on November 5th to receive comments on the update. Their updated permit expands the number of basins where the land application of solid manure is restricted. The draft tentative permit prohibits the application of manure in any area that may affect a groundwater management zone lacking assimilative capacity unless a plan is implemented to offset the effects on the underlying groundwater. The Santa Ana Regional Board does not require groundwater monitoring as the two basins over which dairies are located already exceed their assimilative capacity and therefore solid manure application to land is prohibited. The draft tentative permit also requires dischargers to develop and fully implement an Engineered Waste Management Plan that is developed by a registered professional engineer or other qualified individual.

COMMENTS ON THE DRAFT GENERAL ORDER

Numerous written comments from dairymen, dairy organizations, consultants, and governmental agencies were received on the draft General Order. All of the comments are provided as part of this staff report in Appendix A. A brief summary of the major comments is provided below.

General Comments

In general, many of the comments indicated that the draft General Order is confusing, overly extensive, and will push more dairymen out of business. Many suggested that the draft General Order should incorporate greater flexibility, more reasonable objectives, and an element of cooperation with the dairy industry. Suggestions were made that more emphasis should be placed on proactive outreach and education-oriented solutions.

Costs to Implement the Draft General Order

Many comments expressed the concern that the costs to implement the permit are onerous and that there is no way for dairymen to recoup these costs. Many questioned if the Regional Board has an obligation to conduct an economic analysis impact for the draft General Order.

California Dairy Quality Assurance Program
Numerous comments were focused on the need to somehow incorporate the CDQAP into the draft General Order. Concerns were expressed that if incentives to participate in the CDQAP were not provided in the draft General Order that it would effectively eliminate a program that has proven to be the most effective catalyst for on-the-farm change available to the State's producers. Comments also noted that utilization of the CDQAP could help to leverage state resources and encourage dairy farmers to proactively protect water quality.

Groundwater Monitoring Requirement
Comments on the requirement for groundwater monitoring focused on the costs to comply, the threshold for the monitoring requirement, the ability for such monitoring to identify sources of groundwater degradation, the availability of professionals to conduct the work, and possible alternatives.

Many comments noted that it would be too expensive for dairies to install and sample monitoring wells and some also noted that such a requirement would divert resources from activities, such as proper application, that could yield environmental improvements.

Several suggestions were made that the threshold for groundwater monitoring should be risk-based rather based than on dairy size.

Concerns were expressed about the ability of groundwater monitoring to distinguish between off-site and on-site impacts to groundwater and the resulting impacts to the dairymen (i.e., increased investigation costs, liability).
Concerns were also expressed that there may not be enough registered professionals to install and sample monitoring wells at the large number of dairies that will be required to monitor groundwater, especially in the northern Sacramento Valley where these types of services are not available.

Possible alternatives to the groundwater monitoring requirement were suggested. These alternatives included vadose zone monitoring, soil and plant tissue analysis, a regional groundwater monitoring program, and monitoring the proper timing and application rates of manure and wastewater.

Monitoring and Reporting Requirements
Some comments suggested more monitoring and reporting requirements are necessary while others suggested fewer such requirements. Comments were provided asking for plant tissue analyses, increased manure analyses (twice rather than once per year), and electronic submittal of the Notice of Intent, WMP, NMP, Manure Tracking Manifest, Annual Reports, and lab analyses.

Comments provided for fewer monitoring and reporting requirements focused on conducting and reporting inspections by exception rather than daily, weekly, etc.,

reducing the number of nutrients analyzed in manure, and maintaining laboratory analyses onsite rather than submitting them to the Regional Board.

Professional Certifications Required
Comments on the requirement for professional certifications focused on the need to focus certifications on design and performance standards rather than on the ability of a facility to protect water quality or on facility maintenance, the availability of a sufficient number of registered professionals, and the possibility of having CDQAP perform the engineering and nutrient management requirements.

Formation of Stakeholder Groups
Several comments suggested the formation of stakeholder groups to revise the WMP requirements and to develop technical standards for nutrient management with stakeholders such as the Regional Board, State Water Resources Control Board, USEPA, University of California Cooperative Extension, Natural Resources and Conservation Service, and CDQAP.